5.0 ENVIRONMENTAL LAWS AND COMPLIANCE (*NEPA REQUIRED)

Civil works studies and projects should be in compliance with all applicable Federal environmental statutes and regulations and with applicable State laws and regulations where the Federal government has clearly waived sovereign immunity. The USACE will continue to coordinate with Federal and state resource agencies through release of the revised Draft Environmental Impact Statement (EIS). Status of compliance with the various laws and executive orders (EO) is presented in Table 5-1 below. See Appendix A, Annex J for a summary of applicable laws and regulations and for a more detailed discussion of agency coordination and project compliance.

Table 5-1: Status of environmental compliance.

Law, Regulation, or Policy	Status	Comments	Full Compliance Expected
Anadromous Fish Conservation Act of 1965	Coordination ongoing	Anadromous fish species would not be affected by the proposed action. Coordination with NMFS is ongoing.	Compliance achieved following coordination, disclosure and NMFS review of Final EIS.
Bald and Golden Eagle Protection Action of 1940	Coordination ongoing	Based on review of existing data and preliminary field surveys, the CEMVN finds the TSP would have no effect on bald or golden eagles, or their critical habitat. Subsequent NEPA analysis would be completed prior to implementing the NED Plan.	Compliance following coordination, disclosure and USFWS review of Final EIS.
Clean Air Act of 1970	Coordination ongoing	Sec. 309: EPA will rate the document during the public comment period. Sec. 176: Project area currently in attainment of NAAQS. No general conformity determination required	Compliance after disclosure and EPA, LDEQ review of Final EIS.
Clean Water Act of 1977	Coordination ongoing	Section 401: water quality certification from LDEQ not required for programmatic NED Plan. A water quality certification application for the constructible NER Plan is provided in this revised Draft EIS for LDEQ review. Section 404: A 404(b)(1) Evaluation not required for programmatic NED Plan. A 404(b)(1) evaluation is provided for constructible NER Plan.	NED Plan: Compliance for Section 401 and 404(b)(1) not applicable at programmatic level. NER Plan: Compliance with receipt of water quality certificate after disclosure and LDEQ review of Final EIS.
Coastal Zone Management Act of 1972	Coordination ongoing	A programmatic consistency determination has been prepared for the NED Plan. Consistency Determination for constructible NER Plan has been prepared and submitted to LDNR for consistency review with the Louisiana Coastal Resource Program.	Compliance with receipt of coastal zone consistency determination from LDNR, disclosure and review of Final EIS.
Coastal Barrier Resources Act of 1982 and Coastal Barrier Improvement Act of 1990	Coordination ongoing	The TSP would have temporary adverse effect but would provide long term permanent benefits to coastal barrier shoreline resources.	Compliance achieved upon disclosure and review of Final EIS.
Endangered Species Act of 1973	Coordination ongoing	A Biological Assessment (BA) has been prepared and ongoing consultation with NMFS/USFWS will be completed for Final EIS.	Compliance after NMFS and USFWS review the final BA, conclusion of Endangered Species formal consultation, disclosure and review of Final EIS.
Estuary Protection Act of 1968	Coordination ongoing	Estuaries would benefit from implementation of the TSP and there would be no significant adverse impacts to estuaries.	Compliance achieved following disclosure and review of Final EIS.
Farmland Protection Policy Act of 1981	Coordination ongoing	NRCS concurs that impacts to prime and unique farmlands from the TSP will not "irreversibly" impact prime farmland and is therefore exempt from the rules and regulations of Section 1539-1549 of Farmland Protection Policy Act .	Compliance achieved through coordination with NRCS, disclosure and review of Final EIS.




Law, Regulation, or Policy	Status	Comments	Full Compliance Expected
Federal Water Project Recreation Act of 1965	Coordination ongoing	Recreational opportunities have been analyzed and documented in revised draft EIS.	Compliance achieved upon disclosure and review of Final EIS.
Fish and Wildlife Coordination Act of 1958	Coordination ongoing	USFWS provided a draft Fish and Wildlife Coordination Act Report (CAR) dated Nov 5, 2013; a supplemental letter dated Dec 3, 2013; and revised CAR February 2015	Compliance achieved following receipt of final FWCAR and USFWS review of Final EIS.
Magnuson-Stevens Fishery Conservation and Management Act of 1976	Coordination ongoing	An EFH assessment of TSP has been conducted and documented in revised Draft EIS.	Compliance achieved following EFH consultation with NMFS and review of Final EIS.
Marine Mammal Protection Act of 1972	Coordination ongoing	With implementation of TSP & BMP the West Indian Manatee and dolphin is not likely to be adversely affected.	Compliance achieved upon conclusion of consultation with the USFWS/NMFS. Disclosure and review of Final EIS.
Marine Protection, Research, and Sanctuaries Act of 1972	Coordination ongoing	No adverse impacts of the TSP are anticipated to the resources under this Act.	Compliance upon disclosure and review of Final EIS.
Migratory Bird Treaty Act of 1918 and Migratory Bird Conservation Act of 1929	Coordination ongoing	Based on review of existing data and preliminary field surveys, the CEMVN finds that implementation of the TSP would have no adverse effect on colonial nesting water birds or other migratory species.	Compliance after USFWS review of the Final EIS.
National Environmental Policy Act of 1969	Coordination ongoing	Revised Draft EIS is being coordinated with the public/agencies for a 45 day comment period. Subsequent NEPA analysis would also be completed for the programmatic NED Plan.	Compliance upon coordination of the Final EIS, remaining public involvement activities completed, and signing ROD.
National Historic Preservation Act of 1966	Consultation ongoing	Consultation with SHPO and Federally-recognized Tribes is ongoing. A programmatic Section 106 agreement will be executed prior to release of FEIS.	Compliance following conclusion of Section 106 consultation, disclosure and review of Final EIS.
Submerged Lands Act of 1953	Coordination ongoing	Coordination with LDNR and LDWF is ongoing.	Compliance achieved upon disclosure and LDNR, LDWF review of Final EIS.
Rivers and Harbors Act of 1899	Analysis On-going	The existing structure at Measure 74a may impede navigation. Proposed hydro and salinity control structure 74a may impede navigation.	Analysis On-going.
Resource Conservation and Recovery Act of 1976; Comprehensive Environmental Response, Compensation, and Liability Act of 1980; Toxic Substances Control Act of 1976	Analysis On-going	A standard Phase I Environmental Site Assessment for the NER Plan is currently ongoing and will be presented in the Final EIS. To date, preliminary review of the NER project area indicates the absence of any recognized environmental concerns. See Annex J for additional detail. A Phase I Environmental Site Assessment is not necessary at the programmatic level for the NED Plan This would be conducted in a subsequent NEPA document completed prior to implementing TSP.	Compliance achieved upon disclosure and review of PFEIS.
Wild and Scenic River Act of 1968	Coordination ongoing	The northern reach of the Calcasieu River that is designated as a Wild and Scenic river is in northeastern Calcasieu Parish and will not be affected by the proposed action.	Compliance achieved upon disclosure and review of Final EIS.
E.O. 11514 Protection and Enhancement of Environmental Quality,1970	Complete	The TSP complies with this EO.	Compliant.

Law, Regulation, or Policy	Status	Comments	Full Compliance Expected
E.O. 11988 Floodplain Management, 1977	Coordination ongoing	Portions of the proposed TSP would be located in the 25-year floodplain. However, subsequent NEPA analysis on the NED Plan would be completed prior to implementing TSP.	Compliance achieved after Calcasieu, Cameron, Vermilion Parish Floodplain Administrators review the Final EIS.
E.O. 11990 Protection of Wetlands, 1977	Coordination ongoing	Measures to avoid, minimize, and reduce impacts to wetlands will be maximized to the extent possible. NER Plan provides wetland restoration. No compensatory mitigation for unavoidable impacts is currently anticipated. However, subsequent NEPA analysis would be completed for NED Plan prior to implementing the TSP.	Compliance following programmatic design of the TSP; disclosure and review of Final EIS.
E.O. 12898 Environmental Justice for Low Income and Minority Populations, 1994	Coordination ongoing	Analysis of the NED and NER plan identified no disproportionate impacts to EJ communities. (see Appendix A, Annex O).Further evaluation will be performed prior to implementation of the NED Plan to ensure adequate consideration of the potential of EJ-related impacts across the study area.	Compliance achieved upon disclosure and review of Final EIS.
E.O. 13112 Invasive Species, 1999	Coordination ongoing	The project is not expected to lead to propagation of invasive species.	Compliance achieved upon disclosure and review of Final EIS.
E.O. 13175 Consultation and Coordination with Tribal Governments, 2000	Consultation ongoing	Consultation with Tribes is ongoing. Consultation would continue through preparation of subsequent NEPA documents prior to implementing the TSP.	Compliance achieved upon conclusion of Tribal consultation, disclosure, and review of Final EIS.
E.O. 13186 Responsibilities of Federal Agencies to Protect Migratory Birds, 2001	Coordination ongoing	No compensatory mitigation for unavoidable project-induced impacts to bird and wildlife habitat is anticipated.	Compliance achieved upon disclosure and review of Final EIS.

5.1 Fish and Wildlife Coordination

The Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) provides authority for the U.S. Fish and Wildlife Service (USFWS) involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires Federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, National Marine Fisheries Service (NMFS) and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate impacts. In accordance with Section 2(b) of the FWCA, the USFWS provided a Draft Coordination Act Report (Draft CAR) dated November 5, 2013. Due to earlier modifications to the proposed plan, USFWS provided a revised Draft CAR dated December 3, 2013. In connection with the recommended NED and NER TSPs detailed in this report, USFWS most recently provided a Revised Draft CAR dated February 2015. These documents can be found in Appendix A, Annex G. The USFWS' position and recommendations as provided in its February 2015 Revised Draft CAR along with MVN's responses are set forth below:

SERVICE POSITION AND RECOMMENDATIONS

Although the proposed ecosystem restoration measures will provide a substantial benefit to wetlands and associated fish and wildlife resources, aspects of those measures can nevertheless have some unintended adverse impacts to adjoining wetlands and/or fish and wildlife resources. The recommendations provided below address ways to avoid such unintended impacts and to improve fish and wildlife habitat quality in and adjacent to those restoration areas. Therefore, the Service supports implementation of the TSP provided the following recommendations are included as part of the plan.

Because submerged aquatic vegetation provides food for migratory waterfowl, and provides high quality nursery habitat for estuarine dependent fisheries (Castellanos and Rozas 2001, and Kanouse et al. 2006), the

open water areas targeted for marsh creation measures should avoid areas of dense submerged aquatic vegetation to the greatest degree possible.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

Marsh Creation south of Grand Chenier (measures 47a1, 47a2, and 47c1):
These proposed marsh creation measures would convert over 2,000 acres of existing shallow open water to solid marsh. Because those open water areas provide habitat for waterfowl and estuarine fisheries, we recommend that some of those open water areas not be filled to maintain aquatic habitat (i.e.., ponds) used by fisheries and waterfowl.

Because the slurried fill material will come from the Gulf of Mexico, the salinity of the effluent may be very high. If that water is trapped within adjoining marshes or within the fill areas, evapotranspiration during summer and/or droughts could cause damage to adjoining marsh vegetation and/or reduce vegetative colonization of fill areas. To avoid such impacts, we recommend the engineers ensure that adequate channels exist to provide drainage/water exchange, and avoid ponding of Gulf water effluent within or adjacent to the fill areas. Similarly, any ponds or enclosed non-fill areas should have drainage channels (existing or manmade) to carry away Gulf water effluent and avoid concentration of salts.

To the greatest degree possible, sediment pumping should be conducted during non-growing season periods to reduce possible salinity impacts on adjoining vegetation. If this would require mobilization and demobilization of the sediment pipeline at the beach crossing during months when piping plover area present, the Service does not believe that this would be a problem given limited extent of that activity, and the other proposed measures to reduce or avoid impacts to plovers.

The proposed pipeline route utilizes an existing north-south canal for much of its length. To pump into eastern and western extremes of the designed fill area, the pipeline route should depart from that designated route only within the proposed fill area, and should be routed through open water areas, to avoid impacting existing marshes.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

Marsh Creation along Freshwater Bayou Canal (measures 127c3 and 306a1):
The proposed fill areas are strategically located adjacent to Freshwater Bayou Canal to isolate the canal from interior marshes, to preclude canal related hydrology impacts form impacting interior marshes and waters. Currently the plans would have the fill areas drain into interior marshes away from Freshwater Bayou Canal. Because the slurried sediment will be obtained from the near shore Gulf of Mexico, the adjacent intermediate marshes and open water areas might be harmed by the saltwater effluent draining from the fill areas. To minimize that impact, the Service recommends that the effluent be drained into Freshwater Bayou Canal and not the interior marshes. After construction, dewatering, and saltwater drainage from the fill areas has been completed, those drainage routes should be p0lugged and drainage of the fill areas should be redirected into interior marshes.

If a containment dike is constructed adjacent to the Freshwater Bayou Canal, the Service would recommend that it not be degraded after construction so that it can help to maintain the desired hydrologic isolation of the canal form the interior marshes.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

Marsh Creation near Mud Lake (measures 124c and 124d):

Measure 124c would convert over 1,900 acres of existing shallow open water to solid marsh. Because those open water areas provide habitat for waterfowl and estuarine fisheries, we recommend that some of those open water areas should not be filled to maintain aquatic habitat (i.e., ponds) used by fisheries, waterfowl, and other wildlife.

Because the slurried fill material will come from the Gulf of Mexico, the salinity of the effluent may be very high. If that water is trapped within adjoining marshes or within the fill areas, evapotranspiration during summer and/or drought could cause damage to adjoining marsh vegetation and/or reduce vegetative colonization of fill areas. To avoid such impacts, we recommend the engineers ensure that adequate channels exist to provide drainage/water exchange, and avoid ponding of Gulf water effluent within or adjacent to the fill areas. Similarly, any ponds or enclosed non-fill areas should have drainage channels (existing or manmade) to carry away Gulf water effluent and avoid concentration of salts.

The proposed containment dikes along the western and southeastern fill area boundaries may block existing drainage routes for marshes adjacent to the fill area. Should construction of containment dikes create unintentional impoundments, evapotranspiration may increase the salinity of effluent water discharged into those drainage-impaired marshes during the summer and/or droughts. To avoid potential saltwater impacts and impaired drainage impacts, we recommend weir boxes along those section of dike be eliminated unless the presence of unimpeded drainage routes can be documented.

Measure 124d would create approximately 149 acres of marsh along the southern edge of West Cove. Because of oil field board roads located south of the proposed fill area, the fill, areas and marshes south of the fill areas must drain northward via several small canals, into West Cove. To prevent ponding impacts to marshes south of the fill area, we recommend the designs for the containment dikes should avoid closing both of those canals.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

Cameron-Creole Spillway (measure 74a):
The stated design of this structure differs substantially from that found in the 2012 Louisiana Comprehensive Master Plan for a Sustainable Coast (Master Plan). The Service would prefer a design that would allow for greater operational flexibility than the proposed spillway which would have an invert elevation of +2.0 ft NAVD1988. Although the Service supports the Master Plan concept for this measure, details regarding design and operation of this measure are not yet sufficient to authorize this measure under this study. According to staff working to determine benefits (Ken Duffy email correspondence Feb. 2015), the modeling methods used to assess this measure were not sufficient to capture anticipated flood reduction benefits. Consequently, the Service recommends that an independent feasibility assessment of this feature be conducted and that the design should include lower invert elevations and provide greater operational flexibility than that described under this study Such a design may also provide more benefits if it could be used to discharge excess water when stages are less than +2.0 feet NAVD1988.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED to achieve a design that minimizes adverse impacts.

The proposed ecosystem restoration measures will create and protect areas of strategically important marshes. However, implementation of some restoration measures could result in some minor adverse impacts. To avoid and/or reduce those project-related adverse impacts to fish and wildlife resources, and to enhance the desired ecosystem benefits, the Service provides the following general recommendations:

1. To the greatest degree practical, borrow pits for construction of marsh creation measures should be located to avoid and minimize direct and indirect impacts to vegetated wetlands. Borrow pit construction should also avoid the following:

a. avoid inducing wave refraction/diffraction erosion of existing shorelines
b. avoid inducing slope failure of existing shorelines
c. avoid submerged aquatic vegetation
d. avoid increased saltwater intrusion
e. avoid excessive disturbance to area water bottoms
f. avoid inducing hypoxia

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

2. Marsh creation measures should avoid, to the degree practical, areas of dense submerged aquatic vegetation.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

3. The Corps should monitor ecosystem restoration features to document the degree of success achieved. We recommend the Service and other interested natural resource agencies be included in developing those monitoring criteria and in the review of subsequent monitoring information and reports.

RESPONSE: An Adaptive Management and Monitoring Plan (AM&M Plan) has been developed for the ecosystem restoration measures and is included in Appendix A. A more detailed AM&M Plan or Plans will be developed during the feasibility level design phase of this study. It is not anticipated that mitigation would be required. The Tentatively Selected (TSP) Plan does not include any structural risk reduction measures; hence, there would be no potential for mitigation. Additionally, the nonstructural risk reduction features included in the TSP are not anticipated to require mitigation Hence, an AM&M Plan for mitigation is not anticipated. However, should any of the nonstructural features require mitigation following detailed analysis, appropriate mitigation will be developed along with appropriate monitoring and adaptive management plan(s).

4. The Corps should obtain a right-of-way from the Service prior to conducting any work on Sabine or Cameron Prairie National Wildlife Refuges, in conformance with Section 29.21-1, Title 50, Right-of-Way Regulations. Issuance of a right-of-way will be contingent on a determination that the proposed work will be compatible with the purposes for which the Refuge was established.

RESPONSE: Concur. The USACE will coordinate with the USFWS to obtain a right-of-way before implementing measure 74a (Cameron-Creole spillway outfall channel into Calcasieu Lake would be rock-lined for scour protection).

5. All construction or maintenance activities (e.g., surveys, land clearing, etc.) on National Wildlife Refuges (NWRs) will require the Corps to obtain a Special Use Permit for the Refuge Manager of the Southwest Louisiana Refuge Complex. We recommend that the Corps request issuance of a Special Use Permit well in advance of conducting any work on the refuge. Please contact the Refuge Manager (337/598-2216 or SWLRComplex@fws.gov) for further information on compatibility of proposed ecosystem restoration measures, and for assistance in obtaining a Special Use Permit. Close coordination by both the Corps and its contractor must be maintained with the Refuge Manager to ensure that construction and maintenance activities are carried out in accordance with provisions of any Special Use Permit issued by the NWR.

RESPONSE: Concur. The USACE will coordinate with the USFWS to obtain a Special Use Permit from the Refuge Manager of the Southwest Louisiana Refuge Complex. The USACE will also coordinate all restoration activities on the NWR with the Refuge Manager. The USACE will request issuance of a Special Use Permit well in advance of conducting any work on the refuge. The USACE will specifically contact the Refuge Manager at the following telephone number-- (337/598-2216) and/or the following email address-- SWLRComplex@fws.gov).

6. The Corps should contact the Louisiana Department of Wildlife and Fisheries prior to conducting any work on Rockefeller Refuge (337-491-2593).

   RESPONSE: Concur. The USACE will contact the Louisiana Department of Wildlife and Fisheries at 337-491-2593, well in advance of conducting any work on the Rockefeller Refuge.

7. We recommend the Corps continue to coordinate with the Service throughout planning and construction to ensure that the proposed project does not impact waterbird nesting colonies, threatened or endangered species, or species that may be listed in the future.

   RESPONSE: Concur. The USACE will continue to coordinate with the USFWS throughout planning and construction to ensure that the proposed project features do not impact waterbird nesting colonies, or threatened or endangered species that may be listed in the future. The USACE will continue to closely coordinate with the USFWS to provide updated detailed design and analysis information from which the USFWS may fulfill its final Fish and Wildlife Coordination Act.

8. We recommend the Corps coordinate with the Service and other interested natural resource agencies when developing detailed plans regarding restoration measures, especially during the Preliminary Engineering and Design Phase (PED) and construction phase, for measures where specific recommendations have been provided below.

   RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts.

9. To the greatest degree possible, sediment pumping should be conducted during non-growing season periods to reduce possible salinity impacts on adjoining vegetation.

   RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts (response applies to recommendations 10 through 14)

Service recommendations regarding specific ecosystem restoration measures are provided below:

10. Marsh creation measures south of Grand Chenier (47a1, 47a2, and 47c1)
    a. Combined, these measures would convert over 2,000 acres of existing shallow open water to solid marsh. We recommend that some of those open water areas not be filled to maintain aquatic habitat (i.e., ponds) used by fisheries, waterfowl, and other wildlife.
    b. To avoid saltwater entrapment impacts, the engineers are encouraged to design channels to provide drainage/water exchange, and avoid ponding of Gulf water effluent within or adjacent to the fill areas. Similarly, we recommend any ponds or enclosed non-fill areas have drainage channels (existing or man-made) to carry away Gulf water effluent and avoid concentration of slats.
    c. To pump into eastern and western extremes of the designated fill area, the pipeline route should depart form that designated route only within the proposed fill area and should be routed through unvegetated open water areas, to avoid impacting existing marshes.

11. Marsh creation along Freshwater Bayou Canal (measures 127c3 and 306a1)
    a. To avoid saltwater effluent impacts, we recommend that the effluent be drained toward Freshwater Bayou Canal and not into the interior marshes. After construction, once saltwater drainage from the fill areas has been completed, those drainage routes should be plugged and drainage of the fill areas should be redirected into interior marshes.

If a containment dike is constructed adjacent to the Freshwater Bayou Canal, the Service recommends that it not be degraded after construction so that it can help to maintain the desired hydrologic isolation of the interior marshes from the canal.

12. Marsh creation near Mud Lake (measure 124c)
    a. This measure would convert over 1,900 acres of existing shallow open water to solid marsh. We recommend that some of those open water areas not be filled to maintain aquatic habitat (i.e., ponds) used by fisheries and waterfowl.
    b. To avoid saltwater entrapment impacts, the engineers are encouraged to design channels to provide drainage/water exchange, and avoid ponding of Gulf water effluent within or adjacent to the fill areas. Similarly, we recommend any ponds or enclosed non-fill areas have drainage channels (existing or man-made) to carry away Gulf water effluent and avoid concentration of salts.
    c. The proposed containment dikes along the western and southeastern fill area boundaries may block existing drainage routes for marshes adjacent to the fill area. To avoid potential saltwater entrapment impacts and impaired drainage impacts, we recommend weir boxes along those sections of dike be eliminated unless the presence of unimpeded drainage routes can be documented.

13. Marsh creation near West Cove (measure 124d)
    a. To prevent ponding impacts and saltwater entrapment impacts to marshes south of the fill area, we recommend the containment dike designs avoid closing both canals that provide drainage for the fill area and adjacent marshes.

14. Cameron-Creole Spillway (measure 74a)
    a. The Service recommends that an independent feasibility assessment of this feature be conducted and that the design include lower invert elevations and should provide greater operational flexibility than that described under this study. Such a design may also provide more benefits if it could be used to discharge excess water when stages are less than +2.0 feet NAVD1988.

RESPONSE: Acknowledged. USACE will work closely with the USFWS and other interested natural resource agencies during the PED and construction phases to achieve a design that minimizes adverse impacts (response applies to recommendations 10 through 14)